

## **Standard Operating Procedure for Grinding Fertilizers**

### 1.0 Location

All grinding and subsampling work is done in the grinding room 301a.

### 2.0 Purpose

The purpose of this procedure is to ensure that representative portions of fertilizers are available for analysis.

### 3.0 Applicability

This procedure is applicable only to fertilizer.

### 4.0 Definitions

Fertilizer blends are mixtures of straight material fertilizer products. Blends are usually comprised of particles of different shape, size, and density. Straight materials can be, but not limited to, urea (46-0-0), diammonium phosphates (11-52-0 or 18-46-0), or potassium chloride (0-0-60).

### 5.0 References

No special references apply to this operating procedure.

### 6.0 Discussion

No additional discussion applies to this operating procedure.

### 7.0 Responsibilities

The fertilizer analysts are ultimately responsible for performing sample reduction and grinding, however, other individuals might be assigned these tasks.

### 8.0 Procedure

8.1 Take the role of L numbered tape which has two of the same number on it, and put one of the numbers on the jar and one on its lid.

8.2 Take the numbered sample bags and jars from the feed and fertilizer lab to the grinding room.

- 8.3 Set up the the non-gated riffle and place receiving pan on each side. Do as the next steps state for riffling.
  - 8.3.1 Pour the sample from the bag into a sample pan.
  - 8.3.2 Position the sample pan over the center of the splitter and pour the sample into the splitter.
  - 8.3.3 After the sample has passed through the splitter, remove one of the receiving pans and pour its contents back into the sample bag. Place the empty pan back under the splitter
  - 8.3.4 Remove the other receiving pan and replace it with an empty receiving pan.
  - 8.3.5 Pass the remaining sample in the second receiving pan through the splitter as was done above.
  - 8.3.6 Riffle the sample until there is enough to fill the sample jar one-half to three-quarters full.
  - 8.3.7 Transfer the reduced sample to the sample bottle, cap the bottle, and place the bottle in the styrofoam bottle carrier.
  - 8.3.8 The bag containing the remainder of the sample should be stored in the proper storage cabinet in the grinding room..
- 8.4 Grind the sample using the Tecator micro mill.
  - 8.4.1 Pour the sample into another container.
  - 8.4.2 Position the sample bottle under the exit spout on the mill.
  - 8.4.3 Turn on the mill and pour the sample into the top opening at a rate so as not to bog down the mill.
  - 8.4.4 When the sample has finished grinding, turn off the mill, remove and cap the sample bottle and put it back into the styrofoam carrier.
  - 8.4.5 Clean the mill thoroughly by blowing it out with compressed air and reassemble.

8.4.6 Continue grinding samples by the above procedure.

8.4.7 The bag containing the remainder of the sample should be stored in the proper storage cabinet in the grinding room.

8.4.8 The sample bottles containing the ground sample can be taken to the laboratory.

## 9.0 Quality Control

9.1 The person who grinds and transfers samples to larger bags must make sure that the sample gets into the correct sample bag.

9.2 If the sample fails, then the analyst should take the unground sample and run it in duplicate.

## 10.0 Documentation

No special documentation is required in this procedure.

## 11.0 Records/Sample Retention

11.1 All bagged portions of samples that meet claims should be retained for a minimum of three months from the date the report is issued.

11.2 All bottled portions of samples having deficiencies in one or more analytes should be retained for a minimum of 6 months from the date the report is issued.